LVANIA DEPARTMENT OF AGRICULTURE
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MAPLE SHADE TREE TROUBLES

The maple tree is native to this country and is so well adapted to our soils and climate that it has been much planted for shade and ornamental purposes. A number of troubles have been noted on these trees which check their growth, damage their appearance or even kill them outright. The commonest of these are here listed.

1. **Sunscald.** The foliage of maples perhaps even more than that of most other trees is subject to the form of injury known as sunscald. This arises from the heat of the sun or even the air on leaves which are temporarily suffering from inadequate water supply. Whether the lack of water is due to root injury, partial girdling of the stem, or merely to very dry soil is immaterial; if the top is not getting enough water a few hours on a single hot day will bring about the death of more or less leaf surface and leave the tree unsightly for the rest of the season. In mild cases of sunscald the injury is most prominent between the veins. Additional contributing causes to sunscald are: an excessively developed top bearing too much foliage for the root system to take care of; covering of the earth with pavement which prevents the soaking in of surface water; a recently cut ditch near the tree which destroys the roots and lowers the original water table; and the reflection of heat from buildings and pavements in sheltered places. The weather conditions during leaf development in early summer also affect the susceptibility of the tree to sunscald later in the season. Foliage developed in warm, dry weather will be relatively resistant, while leaves grown in moist, cool conditions will be thinner, more delicate, evaporate more water, and will thus scald readily.

The obvious method for avoiding sunscald is to provide the trees with a sufficient water supply particularly during hot weather. Artificial watering by filling cup-like depressions in the soil, made to hold added water, filling tiles set underground flush with the surface, or use of the hose are recommended in this connection.

2. **Wind Injury to Leaves.** When the first leaves of maple come out in spring and are at the stage of a half opened umbrella, their tissues are very soft and delicate and are thus easily torn and cracked by the wind. A strong breeze at this time tears and breaks their surfaces, leaving them ragged and with browned edges and areas.

3. **Frost Injury.** A heavy night of frost followed by a bright morning sun may also cause a lot of leaf injury on the side exposed to the first rays of the sun, owing to too rapid thawing which causes death of the tissues.

4. **Gas Injury.** Occasionally a tree on a city street dies suddenly in full leaf, the leaves turning brown and hanging on the tree. In many cases this injury has been traced to a leak in a nearby gas main which has flooded the soil with gas and thus destroyed the root system. Usually the smell of gas can be obtained either above ground or in a hole dug a foot deep and covered with a board for an hour. Another evidence of gas injury is the killing of grass and weeds in an area about the tree.

5. **Root Rot.** When sickly maples are examined at the base of the trunk one often finds the bark entirely killed near the point at which the roots begin; sometimes the bark for some distance down on the main roots is also browned and dead. The bark on roots at some distance from the trunk may be still green and fresh as well as that of the trunk above ground. A tree in this condition has been attacked by rot fungi which have partially or completely girdled the base of the trunk. The unfortunate point about such cases is that at the time when the top begins to show suspicious symptoms the girdling is so far advanced that nothing can be done to save the tree. If the root rot attack could be taken in time, it is very likely that removing the already dead bark and exposing the trunk and upper part of the roots to sun and air for several months of summer would check the rot, and enable the tree to make a complete recovery. In such a case the earth should be restored in late fall.

6. **Maple Leaf Spot.** This trouble resembles sunscald in a general way; but where sunscald areas are typically between the veins, the leaf spots are more or less circular and have no such relation. Further, one may note on the leaf spots numerous minute dark specks, particularly toward the end of summer; these are the fruiting or spore bearing stage of the leaf spot fungus, and are not present on sunscald areas.

Ordinarily the leaf spot disease is not important enough to require any special control measures. Where it is too plentiful the yearly burning of the old leaves in fall will greatly reduce the infection for next season; if more thorough control is needed, spraying would probably be successful, but up to the present it has not been called for.

7. **Staghead.** The name given to this trouble was conferred in an attempt to make it descriptive. It refers to a maple tree in which the uppermost branches are dying or dead and appear like a set of antlers sticking up out of the tree. The disease is a progressive one; the first sign is an early coloring or yellowing of the foliage in the top branches after which the sickliness and small size of the leaves become more pronounced each year until the branch dies. Usually the same symptoms progressively affect the next limbs until the tree is entirely killed. The cause is unknown, but it has been suggested that it is due to lack of continuous water supply to the tree top. Not all trees showing staghead symptoms die. Many trees so affected have recovered completely after the sickly limbs had been pruned out, and in certain cases recovery seems to have occurred where no pruning was given. For ordinary shade trees the prompt pruning of staghead limbs seems advisable if for no other reason than that of appearance. If, with this pruning, goes attention to soil fertility and water supply, all that is known to be of value will have been done.

8. **Wilt.** Staghead is typically a disease of the upper branches; on the other hand, the wilt disease seems to occur more generally on the lower limbs and often on the smaller ones coming from the main trunk. In staghead the leaves are small and yellowish, and color and fall early; in wilt they merely dry up, become dry and

papery and tend to remain on the tree. In a typical wilted limb there may be found narrow, blue-green streaks in the wood.

Wilt is due to a fungus (Verticillium) which clogs up the sap channels and thus causes the drought conditions mentioned. It is said to kill limbs of any size, and even whole trees. On the other hand there is enough evidence of recovery of trees from which limbs affected by wilt had been removed, to justify us in placing some reliance on careful pruning as a method of control. Beyond this, there are no recommendations as yet, as the disease has been studied but little from the standpoint of control.

9. **Ocellate Maple Leaf-gall** *(Cecidomyia ocellaris)* **Osten Sachen.** Red maple leaves are often covered with circular eye-like spots. This is caused by one of the flies, the adult of which is unknown. Picking and burning infested leaves as soon as they show signs of infestation might tend to control the pest in highly prized ornamental plantings.

10. **Maple Borer** *(Synanthedon acerini)* **Clem.** This insect causes deformed trunks and areas showing powdery borings with here and there a small round hole. The adult is one of the clear wing moths, and might be mistaken for some other order of insect. The larvae do the damage to the trees beneath the bark. Repellent washes may be used to keep the adults from laying eggs. The larval borings are not deep, and their grubs may be cut out. Parts cut out should be well painted.

11. **Cottony Maple Scale** *(Pulvinaria vitis)* **Linn.** The small twigs of maples are often festooned with cottony masses which are covered with brown scales. This is one of the scale insects and can be controlled by a dormant oil spray. Brushing the cottony masses from the tree during the growing season will give results.

12. **Maple Phenacoccus** *(Phenacoccus acericola)* **King.** These are cottony white scale insects which can be found on the underside of the leaves and trunk. Dormant oil spray is effective in the control. "Black Leaf 40" and whaleoil soap can be used in the growing season.

13. **Sugar Maple Borer** *(Glycobius speciosus)* **Say.** Dead limbs among leafy branches, or transverse ridges on the trunk are indications of the work of the large white grub which mines the cambium of the healthy sugar maple trees. Cutting out the young grub in valuable shade trees is advised. Wounds should be well painted.

14. **Maple Twig Pruner** *(Hypermallus villosus Fabr.)* The larva of this species, which is a white grub about one inch long, prunes small branches from living trees. Pruned branches should be gathered and burned.

15. **Maple Gall Former** *(Xylotrechus aceris)* **Fisher.** The work of the larvae in the living trunks and branches causes galls to form at the points of infestation. No practical method of control is known.

16. **White-Marked Tussock Moth** *(Hemerocampa leucostigma Linn.)* The hairy caterpillars defoliate the trees and spin cocoons on the sides of buildings and on the trunks of trees. Arsenicals will destroy the larvae. The cocoons which bear the egg masses should be collected and burned during the winter months.